



Receptive Vocabulary Knowledge among Chilean IB Students in Primary and Secondary Education: Results from the Updated Vocabulary Levels Test

Conocimiento léxico receptivo en estudiantes chilenos del Bachillerato Internacional de enseñanza básica y media según la Prueba de Niveles de Vocabulario actualizada

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Abstract

Vocabulary knowledge is widely recognized as one of the strongest predictors of proficiency in second language acquisition. In International Baccalaureate (IB) institutions, receptive vocabulary is typically learnt implicitly through the Language and Literature Programme, as explicit lexical instruction is not a prioritized. Accordingly, this study aims to assess the receptive vocabulary knowledge of primary and secondary students attending an IB school using the updated Vocabulary Levels Test. A total of 339 students from 7th to 10th grade completed the test in a single invigilated session. The VLT measures knowledge of the 5,000 most frequent English word families, which represent roughly more than 95% of most written texts. The results showed that participants demonstrated strong knowledge of the first 2,000 word families (frequency bands 1 and 2), while performance declined across the subsequent 3,000 word families (frequency bands 3 to 5). These findings align with the prevailing trend of implicit vocabulary acquisition observed in this school. The study suggests that boosting vocabulary learning by a more explicit teaching approach would greatly benefit learners, especially focusing on the third, fourth, and fifth frequency bands.

Keywords: receptive knowledge, vocabulary learning, frequency, IB programme, UVLT

Resumen

El conocimiento del vocabulario se considera el mejor predictor de la competencia en la adquisición de un segundo idioma. En las instituciones del Bachillerato Internacional (BI), el vocabulario receptivo se aprende de manera implícita a través de un programa de Lengua y Literatura, ya que la enseñanza deliberada del aspecto léxico no es una prioridad. Por lo tanto, el objetivo principal de este estudio es determinar el conocimiento del vocabulario receptivo de estudiantes de primaria y secundaria que asisten a un colegio del BI mediante la aplicación de la prueba de niveles de vocabulario actualizada. Se evaluó un total de 339 estudiantes de séptimo año de enseñanza básica a segundo año de enseñanza media con dicha prueba en una única sesión supervisada. Este test mide el conocimiento de las primeras 5.000 familias de palabras más frecuentes del idioma inglés, que representan aproximadamente más del 95% de cualquier texto. Los resultados mostraron que las primeras 2.000 familias de palabras (bandas de frecuencia 1 y 2) eran conocidas en gran medida por los participantes, mientras que las familias de palabras 3.000, 4.000 y 5.000 (bandas de frecuencia 3 a 5) necesitan mejorar. Estos hallazgos se alinean con la tendencia predominante de la adquisición implícita de vocabulario observada en este colegio. Fortalecer el aprendizaje del vocabulario mediante un enfoque de enseñanza más explícito beneficiaría enormemente a los estudiantes, especialmente centrándose en las bandas de frecuencia 3, 4 y 5.

Palabras clave: conocimiento receptivo, aprendizaje de vocabulario, frecuencia, programa del BI, UVLT

INTRODUCTION

Language is a remarkable human tool that transcends mere communication and is the foundation of thought, expression, and culture (Rabiah, 2018). Pinker (2015) stated that, traditionally, words are seen as basic building blocks of language learning and processing, serving as vessels for ideas, emotions, and experiences. Yet, the extent of our vocabulary knowledge extends beyond our ability to produce words; it equally hinges on our capacity to understand and comprehend the words of others. This hidden facet of linguistic prowess, known as receptive vocabulary knowledge, plays a pivotal role in enabling effective communication. From early childhood to adulthood, vocabulary knowledge is a silent force that shapes our ability to comprehend, connect, and interact meaningfully (Kilic, 2019). Despite its recognized importance, little is known about how receptive vocabulary develops in specific educational settings where English is not explicitly taught.

The significance of lexical knowledge in the enhancement of proficiency among EFL learners has been considered indispensable for the learners' academic performance (Cheng & Matthews, 2018; McLean et al., 2020; Nation, 2017). Taking that into consideration, this study seeks to examine receptive vocabulary knowledge, exploring its development, manifestations, and the role it plays in linguistic and cognitive processes in the context of incidental vocabulary learning. Such is the case of schools that follow the curriculum of the International Baccalaureate (IB), where learners are encouraged to use language as a vehicle for thought, creativity, reflection,

learning, self-expression, analysis, and social interaction. They are also expected to develop the skills involved in listening, speaking, reading, writing, viewing, and presenting in a variety of contexts while being exposed to the target language and exploring it through a variety of media and modes (International Baccalaureate Organization, 2017). However, there is a lack of empirical data examining the actual vocabulary size acquired in such programmes, particularly among primary and secondary students. This study aims to address that gap.

Therefore, we set out to respond to the following research questions: (a) what is the participants' receptive vocabulary knowledge of English as a foreign language across different frequency bands? And (b) what are the differences in participants' receptive vocabulary knowledge outcomes based on their school levels and across frequency bands? Consequently, the main aim of the present study is to determine the receptive vocabulary knowledge of learners of English as a foreign language in middle and secondary school, who learn vocabulary incidentally while they analyse literary texts and perform different communicative activities according to the objectives of the International Baccalaureate programme.

1. Background

1.1 Vocabulary knowledge

Over the years, there have been different research studies focused on the field of vocabulary and how it is acquired by second language learners (Chang & Hsuehchao, 2018; Nation & Gu, 2019; Okkinga et al., 2023; Schmitt, 2019). However, since vocabulary knowledge is multifaceted, not unitary, studying it in education means breaking it down into different skills or areas of understanding (Kilic, 2019).

Well-known perspectives on word knowledge highlight three main dimensions: form, meaning, and use. According to Nation (2017), 'form' encompasses the ability to recognize and produce a word's spoken and written parts, as well as its constituent elements. 'Meaning' pertains to the link between form and meaning, the concept and referent the word denotes, and its semantic relationships with other words. Lastly, 'use' involves understanding the word's grammatical roles, typical collocates, and pragmatic or contextual constraints.

Another classification is the one that contrasts the concepts of 'breadth' and 'depth' of vocabulary knowledge (Anderson & Freebody, 1981; Dickinson et al., 2019; Hadley et al., 2019). Within this framework, vocabulary breadth refers to the total number of words an L2 learner knows, whereas depth denotes how well each word is understood. Put differently, these dimensions represent the size and sophistication of a learner's lexical knowledge (Kilic, 2019). González-Fernández and Schmitt (2017) argue that vocabulary breadth and depth do not develop at the same rate but are interconnected and mutually reinforcing dimensions of lexical knowledge. This

progression aligns with what Schmitt (2010) describes as the incremental nature of language acquisition.

Dealing with vocabulary size implies understanding that the concept of “word” is complex to define and delimit. Currently, the prevailing perspective in teaching and learning is to consider words primarily in terms of their word families (Hirsh, 2019). A word family consists of various morphological forms stemming from a base word, typically sharing a core or related set of meanings. These families are distributed along a continuum of high to low frequency bands. High-frequency words are typically short and versatile, used in various contexts without being constrained by connotative meanings or collocations.

To facilitate learning, frequency lists are compiled as 1,000-word lists, ranking from the first 1,000 most frequent word families to the second 2,000 and beyond (Kavanoz & Varol, 2019). The most frequent 1,000-word families constitute the vast majority of English vocabulary. Therefore, it is highly beneficial to support learners in mastering form-meaning connections before advancing beyond the 2,000-word level. This rationale also applies to the 2,000 and 3,000 levels, which—while covering less lexical ground than the initial 1,000 words—still account for a substantial portion of both spoken and written discourse (Webb et al., 2017).

In addition to frequency bands, another critical aspect of vocabulary acquisition for Spanish-speaking learners of English is the role of cognateness. Cognates, which are words that share similar forms and meanings across languages due to their common etymological roots, offer unique learning opportunities. For instance, while many English cognates are considered infrequent words in general English usage, they are often highly familiar to Spanish speakers because of their Greco-Latin roots (Montelongo et al., 2011). This familiarity allows learners to draw on their previous linguistic knowledge, facilitating their recognition and comprehension of these words in English. Research has demonstrated that Spanish-speaking learners often show a significant advantage in acquiring cognates compared to non-cognates, as these words narrow the gap between their existing knowledge in their native language and their target language (Urdaniz & Skoufaki, 2019; Mitchell et al., 2023). Consequently, incorporating cognates into teaching strategies and frequency-based approaches can enhance learners’ vocabulary development, particularly in writing.

Another framework to conceptualize word knowledge has been established considering the distinction between receptive and productive knowledge (Laufer, 1998). Receptive knowledge implies being able to make sense of words when encountering them in texts or speech in an L2 (Ataş, 2018), whereas productive knowledge reflects the ability to accurately use vocabulary in spoken and written output. González-Fernandez and Schmitt (2020) claim that while recognizing the form-meaning connection of a word may suffice for comprehension, producing the

word typically demands a broader and deeper range of lexical knowledge. Choi (2017) studied the contribution of Korean learners' receptive and productive vocabulary knowledge to their L2 writing performances and whether such effects were mediated by their reading ability. The study revealed the direct contribution of L2 productive vocabulary knowledge to L2 writing and the indirect contribution of L2 to L2 writing through the mediating effect of L2 productive vocabulary or reading. In a related study, Ha (2021) examined the links between various aspects of receptive vocabulary knowledge and language proficiency by administering the Updated Vocabulary Levels Test (UVLT), the Listening Vocabulary Levels Test (LVLT), and both listening and reading components of the IELTS to a sample of 234 Vietnamese EFL learners. The results indicated that receptive vocabulary knowledge was a strong and consistent predictor of learners' receptive language abilities. Furthermore, both written (orthographic) and spoken (aural) vocabulary knowledge were found to be equally important and closely linked to success in L2 listening and reading. Similarly, Webb (2020) provides robust empirical support for the close association between receptive vocabulary and receptive language skills, affirming vocabulary's central role in effective comprehension.

1.2 International Baccalaureate programme

Receptive vocabulary knowledge plays an important role in learning environments where English as a second or foreign language is used as the main communication vehicle. This is the case in International Baccalaureate (IB) institutions, where English is used every day to communicate, explore literature, and achieve learning goals other than the language itself (International Baccalaureate, 2017). These schools have a special emphasis on personal and intellectual development, discipline, skills, and challenging standards, but also on creativity and flexibility (Carder, 2006). The IB is concerned that students develop a personal value system that will "guide their own lives, creating thoughtful members of local communities and the larger world" (Carder, 2006, p. 115). According to their philosophy, a second language is essential for students to be able to participate fully in the social and cultural aspects of school life and reach their potential in the academic use of language in the school curriculum (International Baccalaureate, 2017). Having these priorities in mind, the IB programme relies on the acquisition of vocabulary as a consequence of the learners' exposure to the target language. Learners are expected to absorb the language over the years through communicative tasks and contact with authentic material, rather than through deliberate teaching of grammar and vocabulary.

This understanding of the role of the second language in IB schools is aligned with how English is learned inside the classroom. In this regard, Hirsh (2019) points out that learning new words can occur directly or incidentally. Although Nation (2021) acknowledges the importance of both learning types, he emphasizes that three key conditions enhance the effectiveness of vocabulary acquisition: noticing, spaced

retrieval, and generative use. Noticing involves consciously attending to a word; spaced retrieval highlights the benefit of recalling the word's meaning after a time interval; and generative use refers to actively producing the word in new contexts, such as in speech or writing. Considering this, what happens in the L2 classroom can provide an opportunity for these three conditions to occur, enabling quality learning to take place, even in environments where literature and extensive reading and listening are the excuse for learning and achieving higher-order goals.

To support vocabulary growth, incorporating extended texts as reading material is considered effective for fostering incidental vocabulary acquisition by providing abundant comprehensible input (Reynolds, 2015; Reynolds & Ding, 2022). Prior studies have shown that reading authentic novels aids incidental vocabulary learning in L1 English (L1E) readers and also suggest that L2 English (L2E) readers can benefit similarly from engaging with longer texts (Hatami, 2017; Reynolds, 2016). Reynolds and Ding (2022) examined how lexical factors influence incidental word learning in both L1E and L2E learners during novel reading. Their findings revealed that frequency-related variables positively correlated with performance on word meaning recall tests. Notably, dispersion emerged as the only significant predictor of productive word knowledge acquisition, with words that appeared more evenly throughout the text being more likely to be learned. This underscores the importance of word distribution in incidental vocabulary acquisition for both L1 and L2 readers.

It is noteworthy that most of the studies referenced in this section have primarily involved university or adult learners, and the data collection contexts differ from the IB program setting. Consequently, the findings of the present study hold the potential to bridge a critical gap in this area. As previously mentioned, and considering all these aspects, this study seeks to determine the participants' receptive vocabulary knowledge of English as a foreign language in middle and secondary school, who learn vocabulary incidentally in the context of the IB programme curriculum.

2. Materials and methods

Following a quantitative approach, this descriptive study aimed to investigate the receptive vocabulary knowledge and its development among primary and secondary school learners in a bilingual IB school.

2.1 Participants

This study, conducted at an International Baccalaureate (IB) bilingual school in Chile, involved a group of 339 participants across grades 7 to 10. The demographic composition consisted of 170 female and 169 male upper middle-class students, aged between 12 and 15 (age means per grade: 7th, 12; 8th, 13; 9th, 14; 10th, 15). The school, adhering to the IB curriculum, places particular emphasis on developing language skills and fostering critical thinking, without explicit language teaching rules. The

curriculum centres on the mastery of both English and Spanish languages, and no other additional language is reported to be spoken, nor learnt among the participants, therefore, no participants were excluded from the study based on this criterion. The school program is designed to cultivate international-mindedness and proficiency in communication across diverse contexts. Students from all grades are expected to express articulate and cohesive ideas that exemplify creativity, critical thinking, and adequate language use, although language rules and vocabulary are not explicitly taught to learners.

2.2 Instruments

In order to determine the participants' receptive vocabulary knowledge in the study, the Updated Vocabulary Levels Test (Webb et al., 2017) was used. This test is designed to measure the learners' receptive knowledge of the most important words in English—the first five 1000-word frequency levels from Nation's (2012) BNC/COCA word lists. The test follows a matching format, comprising ten clusters of three items per level, designed to assess learners' knowledge of nouns, verbs, and adjectives in proportions that reflect their frequency in English. Specifically, five of the ten clusters consist of nouns, three focus on verbs, and two on adjectives (Webb et al., 2017). The authors suggest different mastery thresholds depending on the level: a score of 29 out of 30 is recommended for the 1000, 2000, and 3000 levels, while a cutoff of 24 out of 30 is maintained for the 4000 and 5000 levels, consistent with earlier test versions. The stricter threshold for the lower levels reflects the high frequency and foundational importance of those word families in English vocabulary development.

2.3 Procedure

The study was carried out during the second academic semester of 2023 at a bilingual International Baccalaureate (IB) school in Chile. A total of 339 students from 7th to 10th grade were invited to participate. Participants were selected through convenience sampling, as the researchers had direct access to the school, and all enrolled students in the relevant grade levels were included without exclusion criteria. The group represents a typical profile of IB learners in the Chilean private school context—upper middle-class students aged 12 to 15, with balanced gender distribution, and no additional languages reported beyond Spanish and English.

To assess the learners' receptive vocabulary knowledge, the researchers administered the Updated Vocabulary Levels Test (UFLT) developed by Webb et al. (2017). This instrument was selected for its wide use in L2 vocabulary research and its robust validation across different educational contexts. The test evaluates knowledge of the most frequent 5,000 English word families through five 1,000-word frequency bands using a matching task format. The test was applied in a single invigilated session for each class group under standardized conditions to ensure reliability.

Prior to test administration, school authorities and teachers were informed of the research goals and protocols. On the designated day, test instructions were explained to each group, and students completed the paper-based version of the UVLT in a regular class period. No time constraints were imposed, but most participants completed the test within 30-40 minutes. Answer sheets were collected and digitized for further analysis. Once the tests were administered, all student responses were coded and processed using SPSS 24.0 for descriptive and comparative statistical analysis across school levels and frequency bands. The study was conducted in accordance with the Ethics, Bioethics, and Biosecurity guidelines established by the sponsoring institution, under which the authors are affiliated, following the approved research certification protocol.

2.4 Data analysis

In order to analyse the responses from the updated Vocabulary Levels Test, the software SPSS 24 was used. Numeric variables were represented by their mean and standard deviation when they exhibited a normal distribution, and by their median and interquartile range otherwise. In all cases, a significance level of 0.005 was applied.

3. Results

Descriptive statistics of the data was conducted to have an overview of the participants' performance on the updated Vocabulary Levels Test. The results are summarized in Table 1.

Table 1

Descriptive statistics of the scores of the UVLT

Form	Variable	Mean	S.D.	Median	Q1	Q3	Skewness	Kurtosis
7 th	Band 1	29,3	1,1	30	29	30	-1,83	3,38
	Band 2	26,9	3,7	28	26	30	-2,11	5,81
	Band 3	23,9	5,0	25	22	27	-1,88	4,81
	Band 4	22,4	6,2	23	19	28	-0,95	0,59
	Band 5	21,5	7,1	23	19	28	-0,98	0,29
8 th	Band 1	29,4	1,3	30	29	30	-2,63	6,81
	Band 2	27,6	2,8	28	27	30	-1,71	3,08
	Band 3	24,5	4,3	26	22	28	-1,47	2,18
	Band 4	23,7	6,6	26	21	28	-1,66	2,05
	Band 5	22,8	6,6	25	20	28	-1,23	0,86
9 th	Band 1	29,8	0,6	30	30	30	-2,81	8,35
	Band 2	28,9	1,7	29	29	30	-2,38	6,17
	Band 3	26,1	3,4	27	24	28	-1,51	2,55
	Band 4	26,1	5,0	28	24	29	-2,12	4,36
	Band 5	24,7	6,8	27	24	29	-2,3	4,58
10 th	Band 1	29,7	0,7	30	30	30	-3,04	9,44
	Band 2	28,8	2,5	30	29	30	-3,45	13,15
	Band 3	26,9	3,0	27	26	29	-1,93	5,09
	Band 4	26,9	3,9	28	25	30	-1,68	2,48
	Band 5	26,6	4,5	28	25	30	-2,58	8,46

The present study offers a descriptive analysis of the outcomes achieved by the participants across 4 school levels, 7th to 10th grade, within the framework of the five frequency bands assessed by the instrument. Table 2 provides a comprehensive overview of the test results attained by participants in each of the frequency bands.

Table 2
Vocabulary Levels test results

Form	n	Band 1	Band 2	Band 3	Band 4	Band 5
7th	81	97.7%	89.7%	79.5%	74.8%	71.6%
8th	87	98.0%	91.9%	81.5%	78.9%	75.9%
9th	83	99.2%	96.4%	87.1%	87.1%	82.3%
10th	88	99.1%	95.9%	89.5%	89.7%	88.7%

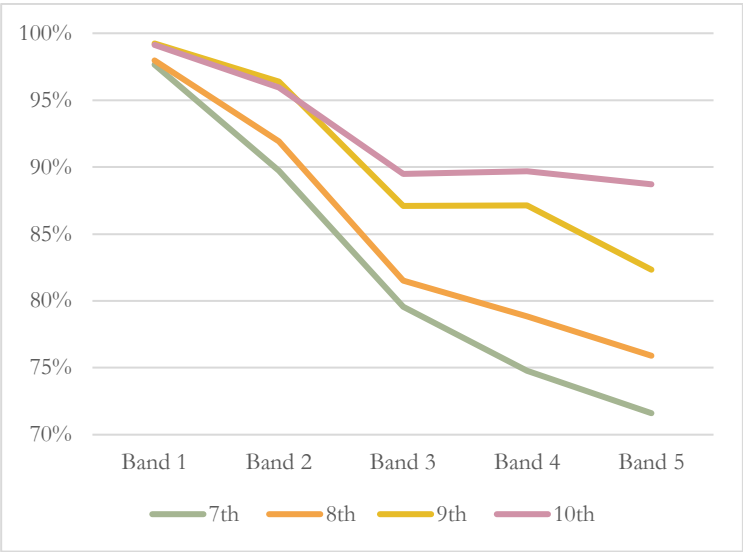
According to the proficiency criteria established by the test's authors (Webb et al., 2017), mastery of Band 1 is evidenced across all grade levels. Specifically, 7th-grade participants exhibited a command of 97.7% of the word families in Band 1, while 8th-grade students demonstrated knowledge of 98%, 9th-grade students achieved 99.2%, and 10th-grade students reached 99.1%. In Band 2, results indicate that only 9th-grade students approach the target score, attaining a correctness rate of 96.4%, however, this does not comply with the minimum requirement of 29/30 ratio to consider this band mastered by the students (at 97%). In contrast, the rest of the groups did not reach the desired score, being 7th grade the most distant.

The percentages derived from Band 3 illustrate a decline in vocabulary knowledge across all grade levels, preventing any group from achieving the mastery cutting point of 97%. Specifically, 7th-grade participants scored 79.5%, 8th grade achieved 81.5%, 9th grade reached 87.1%, and 10th grade obtained 89.5%, proving to be the strongest in this particular band. The highest proficiency in Band 4 was shown by 9th and 10th-grade participants only, as expected, achieving scores of 87.1% and 89.7%, respectively, while 7th-grade learners got a score of 74.8%, and 8th grade achieved 78.9%. A parallel pattern is observed in Band 5, where 9th and 10th-grade learners exceeded the established cutting point (24/30 or 80%), with scores of 82.3% and 88.7%, respectively.

As shown in Table 2, participants across all grade levels exhibited a diminishing proficiency in vocabulary knowledge as they progressed from Band 1 to Band 5, indicating that the less frequent the vocabulary, the lower the participants' familiarity with it. Furthermore, a noticeable upward trend in results is apparent corresponding to the participants' school year, suggesting a natural development in proficiency aligned with their academic level. Figure 1 shows the participants' evolution of receptive vocabulary knowledge according to their school levels and across the different frequency bands.

Figure 1

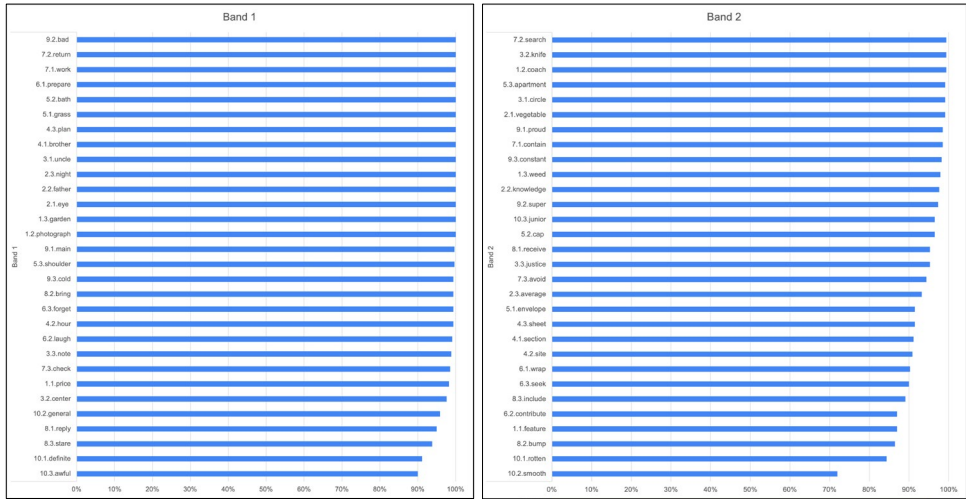
Participants’ receptive vocabulary knowledge evolution



The graphic representation in Figure 2 illustrates the descending order of participants’ performance in Bands 1 and 2.

Figure 2

Performance in band 1 and 2 in descending order

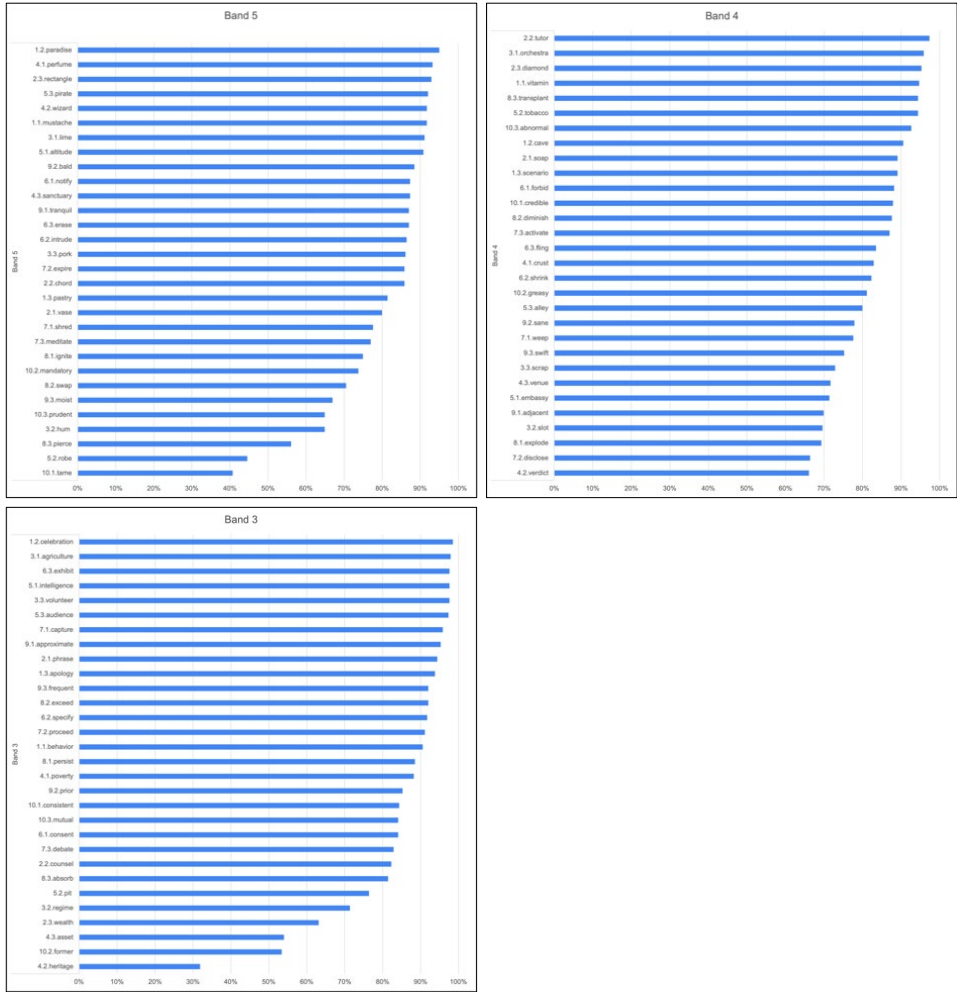


In Band 1, all participants demonstrated knowledge of 14 out of the 30 tested words. Specifically, the words “bad,” “return,” “work,” “prepare,” “grass,” “bath,” “plan,” “brother,” “uncle,” “night,” “father,” “eye,” “garden,” and “photograph” were correctly answered by every participant in the study. Particularly, the word “main”

achieved a 99.7%; however, a declining tendency in correct answers is evident thereafter, with “awful” being the word with the lowest correct answer percentage in this band at 90.0%.

In Band 2, none of the words received a 100% correctness rate. The words “search,” “knife,” and “coach” had the highest accuracy, each at 99.4%. Subsequently, there was a slight decline for the words “apartment,” “circle,” and “vegetable,” with a still high 99.1%. Figure 2 illustrates a progressive decline in participant scores concerning the remaining words in band 2. Notably, the word “rotten” achieved an 84.4% hit rate, followed by “smooth,” which was answered correctly by 72.0% of the participants. Similarly, Figure 3 shows the descending order of participants’ performance in Bands 3, 4, and 5.

Figure 3
Performance in band 3, band 4, and band 5 in descending order



Similar to Band 2, none of the words in Bands 3, 4, and 5 achieved a 100% correctness rate. In Band 3, the word with the most correct responses was “celebration,” with a hit rate of 98.5%. This was followed by the word “agriculture” at 97.9%. The words “exhibit,” “intelligence,” and “volunteer” got 97.6%. The correctness rates progressively declined for the remaining words, as shown in Figure 3. The words that presented a higher degree of difficulty for participants were “wealth” at 63.1%, “asset” at 54.0%, and “former” at 53.4%. Hit rates abruptly declined further for the word “heritage,” which was known by only 31.9% of the participants in the study.

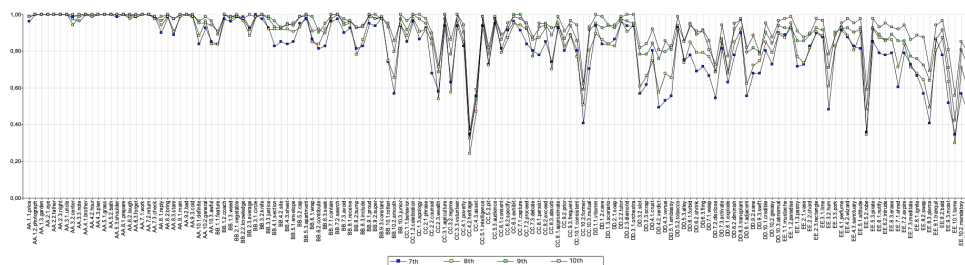
In Band 4, as illustrated in Figure 3, the results showed that the best performance was in the word “tutor,” with a correctness rate of 97.3%. Similar to Bands 2 and 3, after this word, the results start to decline. For instance, immediately following the word “tutor,” the word “orchestra” was recognized by 95.9% of the test takers. The subsequent words, including “diamond,” “vitamin,” “transplant,” “tobacco,” “abnormal,” and “cave,” were all known by more than 90% of the participants. Surprisingly, the word “soap” was recognized by only 89.1% of the students, the same as the word “scenario.” In this band, the words known the least by participants were “adjacent,” with a hit rate of 69.9%, followed by the words “slot,” “explode,” “disclose,” and “verdict.” The latter was the least recognized by participants (with 66.1%).

In Band 5, the highest score reached 91.7%, corresponding to the word “paradise.” This word is followed by the words “perfume,” “rectangle,” “pirate,” “wizard,” “mustache,” “lime,” and “altitude.” Although all of them have descending scores, each had more than 90% correctness. Following these, the word “bald” obtained an 88.5% correctness rate, followed by the words “notify” and “sanctuary,” which were known by 87.3% of the participants. Subsequently, Figure 3 illustrates a steady decline in the words recognized by the students, interrupted by an abrupt drop in scores for the word “pierce” at 56.0% correctness, followed by the word “robe” with 44.5%, and concluding with the word “tame” at 40.7%.

Figure 4 depicts the number of hits in each frequency band across different school levels. Words designated with the letter A pertain to Band 1, those marked with the letter B to Band 2, and subsequently, words in Band 3 are denoted by the letter C, D is assigned to words in Band 4, while those in Band 5 are represented by the letter E.

Figure 4

Responses per frequency bands across all grade levels in the UVLT test



This figure facilitates the assessment of how stable the participants' responses were within Band 1. However, this stability undergoes a change when participants respond to questions associated with Band 2. Notably, in this band, the words 'smooth' and 'bump' emerged as the most challenging for learners across all school levels. Paying attention to Band 3, a substantial number of participants across the four school levels displayed unfamiliarity with the term 'heritage,' followed by the words 'regime,' 'wealth,' 'pit,' and 'former'. Similarly, within Band 4, participants from all school levels encountered difficulty recognizing words like 'adjacent,' 'slot,' 'disclose,' and 'verdict', while in Band 5 the most challenging words were 'robe,' 'pierce,' and 'tame', among others.

4. Discussion

This section discusses the findings in relation to the research questions guiding the study. The first part focuses on the overall receptive vocabulary knowledge of the participants across five frequency bands, while the second examines how that knowledge differs by school level. Key insights are framed with reference to previous literature and the pedagogical context of the International Baccalaureate (IB) programme.

4.1 Participants' receptive vocabulary knowledge across different frequency bands

This question was addressed through the analysis of data collected via the updated Vocabulary Levels Test. The findings reveal that all participants exhibit a strong familiarity with the word families found in Band 1, indicative of how fruitful their school years have been to equip them with solid knowledge of the most commonly used words in the English Language. However, only 9th grade learners showed some mastery of the words in Band 2 and none of the participants, regardless of grade, reached the prescribed mastery level for word families in Band 3, as defined by the instrument's authors (Webb et al., 2017). According to their criteria, these three frequency bands encompass a substantial proportion of the English words and are essential for communication. These results are in line with those of Ha (2022), whose

study showed that a big proportion of their participants had control over the higher frequency bands, while bands with lower frequency presented a challenge for many of them and could be mastered by just a few. Ha's study also raises important methodological concerns around the scoring of vocabulary levels tests and questions the strict reliance on cut-off scores for interpreting mastery. Instead, vocabulary size scores are suggested to offer a more nuanced view of receptive knowledge, which may be particularly useful when examining heterogeneous groups such as EFL learners in IB schools. These results could serve as supportive evidence for the relationship between lexical frequency and lexical difficulty.

This implies that participants in the 7th and 8th grade experience a gap of vocabulary knowledge that needs attention for them to achieve an optimal level of comprehension and communication in English. Turning to Bands 4 and 5, participants in grade 9th and 10th proved to have knowledge of the word families within these bands at the 80% cutting point. This aligns with Nation's (2017) perspective, suggesting that they have successfully established a connection between the form and meaning of words present in the test.

The obtained results primarily address the participants' breadth of vocabulary knowledge (Dickinson et al. 2019; Hadley et al., 2019) due to the fact that the instrument used to collect the data does not measure depth of vocabulary knowledge. Consequently, it can only provide insights into the participants' receptive vocabulary knowledge, since production necessitates a more comprehensive understanding of various aspects of word knowledge, as emphasized by González-Fernández and Schmitt (2020). This receptive knowledge, as suggested by Choi (2017), has proved to have an indirect effect on the students' writing ability, which can be mediated by the learners' reading comprehension.

As stated above, the role of receptive vocabulary knowledge is of great importance in educational settings where the target language serves as a tool for communication rather than merely a subject matter, which is the case of schools with intensive English curriculum, like the institutions under the IB programme. The vocabulary knowledge demonstrated by the participants in the present study is a product of incidental learning, a process highlighted in research by Reynolds (2015) and Reynolds and Ding (2022). Exposure to the English language and a substantial quantity of comprehensible input in the target language contribute to this outcome. Authentic materials, including listening to real-world content and reading extensive novels, as advocated by Shakibaei et al. (2019) and Hatami (2017), have proven to be effective in facilitating incidental word acquisition for second language English learners. Shakibaei et al. (2019) further supported the use of authentic input in vocabulary learning, which indicates that when vocabulary is encountered within meaningful and engaging materials, it enhances retention and contributes to more natural acquisition processes, as is consistent with the IB curriculum's goals.

These findings are aligned with the school's adopted approach. As mentioned earlier, the school curriculum emphasizes the incidental learning of vocabulary and grammar. These aspects are expected to be absorbed naturally through communicative activities and the use of authentic materials within the classroom. Consequently, the time allocated for the English subject is not dedicated to the rote learning of individual words or structures. Instead, it is focused on enhancing skills such as critical thinking, international-mindedness, and the articulation of cohesive ideas to express creativity, among others (International Baccalaureate, 2017). This curricular emphasis on incidental and integrated language learning closely parallels the pedagogical setting examined by Colombo (2019), who explored how lexical development unfolds within content-rich, bilingual educational contexts. Colombo's study focused on students in a multilingual environment in Argentina and used comparable instruments (levels-based vocabulary tests) to examine incidental word learning through academic exposure rather than direct instruction. The sample consisted of primary and secondary learners in an intensive English program, allowing for meaningful comparison with the Chilean IB setting. Importantly, the study concluded that lexical progression in such contexts is uneven and requires extended exposure for learners to internalize mid—and low-frequency vocabulary—findings echoed in the present results. In light of this approach, it can be inferred that concepts like parts of speech, cognates, or word families may not be familiar to the learners. However, recognizing these aspects of vocabulary and understanding their role in language can be advantageous. Such knowledge may contribute to the receptive and productive capabilities of learners, potentially fostering the acquisition of lexical competence among less-proficient students (Colombo, 2019). Similarly, Nation's (2021) three conditions for vocabulary learning—*noticing*, *spaced retrieval*, and *generative use*—could be beneficial for all learners as well.

The participants' achievement in the different frequency bands may be influenced by various factors, including cognates and word frequency. Extensive examination of the role of cognates in English vocabulary learning (Colombo, 2019; Mitchell et al., 2023; Potapova et al., 2016; Urdaniz & Skoufaki, 2019) and the importance of word frequency (Robles-García, 2022; Webb & Chang, 2015; Webb et al., 2017) has been conducted. Cognates are words that, regardless of etymological relation, share similarities in form and meaning. Research in language testing and language learning suggests that cognates facilitate the learning of L2 English words (Urdaniz & Skoufaki, 2019), with increased efficiency and faster processing compared to non-cognate words (Petrescu et al., 2017). However, recent research cautions that cognate facilitation is not always guaranteed, especially among younger bilinguals or those with low proficiency. Potapova et al. (2016), for instance, found that the extent to which cognates support recognition and learning depends on the method of cognate identification and on learners' phonological sensitivity, which may vary developmentally. Regarding word frequency, studies consistently indicate that higher

word frequency correlates with increased likelihood of learning (Reynolds & Wible, 2014). According to the Find-A-Cognate database (Montelongo et al., 2011) there is a substantial presence of cognates in the UVLT, ranging from 47% in Band 1 to 70% in Band 5. However, despite their potential benefits, research findings highlight that Spanish-English bilinguals may not recognize all cognates as observed in the present study with words such as “reply” in Band 1, “contribute” in Band 2, “regime” in Band 3, verdict in band 4, and “vase” in band 5, among others.

This may be explained by the findings of Urdaniz and Skoufaki (2019), who examined the extent to which cognateness and word frequency predict the ability of EFL learners who have Spanish as their first language. Their study suggests that even though cognates affect EFL vocabulary learning and have an advantage over non-cognate words, target word frequency is the most important predictor of vocabulary learning. Consequently, in light of experimental studies corroborating the positive impact of both cognateness and frequency on vocabulary acquisition, as demonstrated by Peters and Webb (2018), efforts should be made to devise strategies aimed at enhancing the learning of word families across different frequency bands and cognate categories.

4.2 Differences in participants’ receptive vocabulary knowledge across frequency bands

The results derived from the collected data reveal variations in vocabulary knowledge across different frequency bands corresponding to the participants' academic levels. Proficiency in Band 1 was demonstrated across all grade levels, including 7th, 8th, 9th, and 10th graders. However, for Band 2, vocabulary knowledge could not be reached by 7th and 8th graders, with successful mastery observed only among 9th graders, although 10th graders approached achievement as well. Notably, none of the participant groups met the expected cutting point for Band 3. This could be attributed to the fact that the cutting point remains the same across bands 1, 2, and 3, despite the word families in Band 3 being less frequent, less familiar, and potentially more challenging for learners.

Turning to Bands 4 and 5, these were reached by participants in the 9th and 10th grades. The exposure of these learners to the language and diverse authentic materials over an extended period may account for their enhanced vocabulary knowledge in comparison to their younger counterparts. This discrepancy suggests a developmental aspect to vocabulary acquisition, reinforcing the notion that prolonged exposure and engagement with authentic materials contribute significantly to language proficiency (Reynolds, 2015). Potapova et al. (2016) similarly found that lexical sensitivity to cognates and low-frequency vocabulary develops with age and literacy experience, especially in bilingual children, which may help explain the stronger performance among older IB students.

In alignment with the IB program's expectations for 9th and 10th grade learners to attain a higher level of proficiency in English, this study draws parallels with Ha's (2021) assertion that such proficiency can be reliably predicted by receptive vocabulary knowledge. Examining the development of participants' vocabulary knowledge across school levels allows for the anticipation of a cumulative increase in vocabulary over the years, which could subsequently lead to greater proficiency levels (Sanhueza et al., 2018). Although current observations indicate that 7th and 8th grade participants are presently limited to achieving proficiency in Band 1 only, it is reasonable to expect that, with time, they will acquire knowledge of less frequent vocabulary. This progressive accumulation of vocabulary is anticipated to enable them to eventually reach vocabulary knowledge associated with Bands 4 and 5. As discussed earlier, Colombo (2019) observed similar developmental patterns in content-integrated bilingual instruction, reinforcing the value of sustained lexical exposure over time in such contexts. The trajectory of vocabulary development among participants supports the expected growth in language proficiency envisioned by the IB program for students in the 9th and 10th grade.

The IB acknowledges that language proficiency is a powerful tool for communication in all societies. Accordingly, its Language and Literature programme aims to equip learners with linguistic, analytical, and communicative skills that can also be used to develop interdisciplinary understanding across all other subject groups (Carder, 2006). To meet this purpose, vocabulary knowledge is crucial for all aspects of oral and written communication. While the IB curriculum does not explicitly outline the expected vocabulary size for each school level, nor what it should be taught explicitly, their curriculum for the Middle Years Programme, encompassing 7th, 8th, and 9th grades, emphasizes the necessity for learners to “effectively use a varied range of appropriate vocabulary, sentence structures, and forms of expression” (International Baccalaureate, 2017, p. 8). Similarly, the Diploma Programme, designed for 10th grade, underscores the importance of students being proficient in “using a wide range of vocabulary” across the six language macro skills—listening, speaking, reading, writing, viewing, and presenting—with an increasing degree of complexity as students pass into higher school levels, for which the acquisition of vocabulary knowledge and use is essential, but not deliberate (International Baccalaureate, 2018).

Addressing how much vocabulary knowledge is needed to fulfil these goals, researchers have argued that the first two frequency bands—comprising the 2,000 most common English word families—are foundational for successful communication (Brown, 2018; Wang, 2020). According to Laufer and Vaisman (2023), a critical threshold in L2 reading comprehension emerges around the 3,000-word level, which they propose as a baseline for reading proficiency. To achieve 98% lexical coverage, Nation and Coxhead (2022) estimate that learners need knowledge of 6,000-to-7,000-word families for understanding movies and conversations, and 8,000 to

9,000 for reading texts such as novels and newspapers. Alderson (2007), by contrast, proposes a more moderate benchmark of 4,000-word families. Given these thresholds, it is clear that the 9th and 10th grade learners in this study are approaching the vocabulary demands of fluent academic reading, while 7th and 8th graders remain below the lexical threshold needed for full comprehension of grade-level materials. These findings align with staged lexical growth models in L2 acquisition (Nation, 2017), which describe plateau effects in early adolescence and subsequent acceleration with exposure and academic demands.

As a result, scholars have examined stages of lexical development beyond the 2,000-word-family level in an effort to bridge the gap between learners' vocabulary size and the lexical demands of proficient English use across various contexts (Vildósola et al., 2021). This exploration leads us to anticipate that, while participants in 7th and 8th grades may currently fall below this threshold, their vocabulary knowledge is expected to progressively reach these levels as they advance through subsequent stages of the school curriculum. Simultaneously, the aforementioned research findings indicate a positive trend for 9th and 10th grade students, who are gradually acquiring a more extensive vocabulary knowledge that will empower them to use English more effectively in various contexts.

CONCLUSIONS

This study examined the receptive vocabulary knowledge of Chilean primary and secondary students enrolled in an International Baccalaureate (IB) programme, using the Updated Vocabulary Levels Test (UVLT). Results revealed that while all participants showed mastery of high-frequency word families (Band 1), performance declined considerably for less frequent vocabulary bands. Students in 7th and 8th grade showed limited lexical coverage beyond the most common 1,000-word families, whereas 9th and 10th graders demonstrated increasing, though still partial, command of mid— and low—frequency vocabulary.

These findings confirm the incremental nature of vocabulary growth in incidental learning contexts, such as those promoted by IB programmes. The study also highlights the influence of word frequency and cognate transparency on learners' receptive knowledge. However, it also exposes a gap between students' current lexical breadth and the vocabulary thresholds suggested for fluent comprehension and expression in academic English. Certain limitations should be acknowledged. The study focused exclusively on receptive vocabulary, offering no data on productive use. It also relied on convenience sampling within a single institution, which may limit the generalizability of findings. Future research might expand to additional IB schools, explore productive vocabulary outcomes, or examine the specific role of cognates in Spanish-English contexts using subjective recognition methods.

Pedagogically, the findings suggest the need to strengthen exposure to mid- and low-frequency vocabulary through structured and meaningful input. While incidental learning remains a key strategy in IB classrooms, more deliberate attention to vocabulary—particularly beyond Band 2—may benefit learners’ progression. Teachers could incorporate vocabulary recycling across subjects, engage students with authentic reading and audiovisual materials tailored to their level, and raise awareness of cognate patterns and cross-linguistic transfer opportunities. Said strategies may help learners not only recognize more words, but internalize them for effective academic use.

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